REMARKS

In response to the Office Action of April 23, 2003, Applicants have carefully considered the rejections of the Examiner in the above-identified application. In light of this consideration, Applicants believe that the claims remain allowable. Applicants respectfully request reconsideration of the rejection of the claims now pending in the application.

In this first Office Action of April 23, 2003, claims 1, 2, and, 5 are rejected, and claims 3, 4, 6 and 7 are objected to. Claim 3 is rejected under 35 U.S.C. §112, as being indefinite. Claims 1, 2, and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,818,964, to Itoh, (hereinafter Itoh) in view of U.S. Patent No. 5,666,436, to Eames, (hereinafter Eames). Claims 3, 4, 6 and 7 are indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There has been a substitution of an exact equivalent formula on page 13, line 10. This expression of the formula is exactly equivalent to the more shorthand expression $a_i = \|e_i\|_p$ it replaces in the specification. Both will be recognized by those skilled in the art as different notation for the same formula, namely a "Minkowski metric" or "L_p norm" equation. As such it does not constitute new matter, and is simply being provided as an aid to clarity for those not as skilled in the art.

Claim 3 is rejected under 35 U.S.C. §112, as being indefinite, as Applicants do not provide definitions for e_i, e_j, and p. The Examiner's attention is respectfully directed to page 13 of the Applicants' specification. There on page 13, line 11, e_i is defined as the luminance error at the center pixel i, and e_j is the luminance error at pixel j. As will be readily understood by those skilled in the art, the variable p is simply any positive integer in a classic "Minkowski

metric" for activity measure. It should be pointed out that the formula for activity provided in claim 3 is a more general expression for the formula example shown on line 14, of page 13 of the specification where p had been set to equal a value of 2.

Claims 1, 2, and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Itoh, in view of Eames. Itoh discloses a device and method for filtering out the noise generated due to coding of image data signals. The device has a threshold determining unit, a binary index unit, a filter selecting unit, and an adaptive filtering unit. The threshold determining unit divides each pixel of the input image data into two gray levels. The binary indexes defined by the gray level are checked by a window with a prescribed size. If the region in the window is determined to be a homogeneous region, a heterogeneous region, or an impulse noise region, the filter selecting unit selects a filter corresponding to the determined region, and the image data is processed by the selected filter. However, Itoh is entirely concerned with filtering to remove noise in image data and there is no mention, hint, or suggestion, of how any filtering criterion can be applied to the problems of color gamut mapping.

Eames discloses a method and apparatus for transforming source images to output images. It performs color transformations using a lookup table and a hashing circuit for referencing entries in the lookup table. The index generated by the hashing circuit is dependent on a first color value. A color encoding circuit is coupled to the lookup table for generating an encoded color value dependent on the first color value. The index produced by the hashing circuit is further dependent upon response characteristics of the human eye. The hashing circuit generates indexes referencing widely separated entries in the plurality of entries of the lookup table when first color values have small differences in value. A comparing circuit is coupled to the lookup table and the color encoding circuit for comparing the entry of the lookup table and the encoded color value to determine a match. A color calculation circuit is coupled to the lookup table for generating a second color value dependent on the first color value. The color calculation circuit generates the second color value when a match does not occur. The second color value

is also stored in the entry of the lookup table. When a match does occur, the lookup table outputs the second color value instead of calculating a new second color value. In the preferred embodiment of the present invention, the hashing circuit comprises a plurality of lookup tables and a logic circuit coupled to the plurality of lookup tables for generating the index.

Eames does not teach gamut mapping. Eames teaches conversion from one color space (e.g. RGB) to another (e.g. CMYK). Please recall that gamut mapping is used where the color range that is possible to reproduce with a particular display is commonly not identical with the color range possible to reproduce with any selected printer. Such is not the situation in Eames, where there is only a color conversion from one color space (e.g. RGB) to another color space (e.g. CMYK) that is being performed. So too like Itoh, Eames completely misses the central teaching of the Applicant's invention which is that color gamut mapping is most pleasing to the eye when variations in color are preserved within local spatial neighborhoods of pixels in an image. Eames makes no suggestion of controlling gamut mapping by application of spatial filtering in response to local image activity. Neither Itoh, or Eames, supplies what the other lacks. They fail to even acknowledge the gamut mapping problem the Applicants teach. Not only do they fail to suggest their own combination, they fail to teach how one skilled in the art could make anything of use from their combination. The very most anyone could get from a combination of Itoh and Eames is possibly to perform noise filtering while doing a color space conversion?

The only way anyone could reach the Applicants' teaching that color gamut mapping is most pleasing to the eye when variations in color are preserved within local spatial neighborhoods of pixels in an image, from a combination of Etoh and Eames, is with impermissible hindsight. Indeed, the Examiner appears to have considered various portions of the references cited, in each instance viewing the cited portion in isolation from the context of the entire reference, and combined these isolated portions to arrive at the present invention with the benefit of hindsight. Using hindsight or applying the benefit of the teachings of the present application when determining obviousness,

however, is impermissible; the references applied must be reviewed without hindsight, must be reviewed as a whole, and must suggest the desirability of combining the references. Lindemann Maschinenfabrik v. American Hoist & Derrick Co., 221 U.S.P.Q. 481 (Fed. Cir. 1984).

When determining patentability under §103, the Examiner must consider the invention as a whole, and cannot view each element of the claim separately with respect to the prior art. See, e.g., Jones v. Hardy, __ F.2d __, 220 U.S.P.Q. 1021 (BNA) (Fed. Cir. 1984). It is impermissible to use the claims as a frame and the prior art references as a mosaic to piece together a facsimile of the claimed invention. Uniroyal Inc. v. Rudkin Wiley Corp., __ F. 2d __, 5 U.S.P.Q. 2d 1435 (Fed. Cir. 1988); W. L. Gore and Associates, Inc. v. Garlock, Inc., 721 F. 2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983).

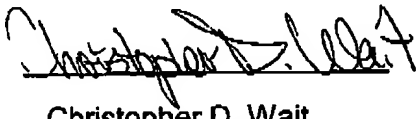
When prior art references require selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Uniroyal Inc. v. Rudkin Wiley Corp., __ F. 2d __, 5 U.S.P.Q. 2d 1435 (Fed. Cir. 1988); Interconnect Planning Corp. v. Feil, 774 F. 2d 1132, 227 U.S.P.Q. 543 (Fed. Cir. 1985). The only reason provided by the Examiner for the combination of Itoh and Eames is that they are from the same field of endeavor which is image processing. "Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that 'would lead' that individual 'to combine the relevant teachings of the references.' In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). In re Newell, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). Accordingly, an examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done."

Allowance of claims 1, 2, and 5 is respectfully requested.

Claims 3, 4, 6 and 7 are indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicants' wish to express appreciation for the indication of allowable subject matter. However, as claims 3, 4, 6 and 7, depend from claims deemed allowable, they should be allowable as well. Allowance of claims 3, 4, 6 and 7 is respectfully requested.

It is respectfully submitted that the present set of claims are patentably distinct over the cited references. In the event the Examiner considers personal contact advantageous to the disposition of this case, he is hereby requested to call the undersigned attorney at (585) 423-6918, Rochester, NY.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE:

IN THE SPECIFICATION:

Amended formula on page 13, beginning at line 10:

~~$a_i = \|e_i\|_p$~~

$$a_i{}^{L_p} = \left[\sum_j (e_i^p - e_j^p)\right]^{\frac{1}{p}}$$